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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,045

04/12/2005

Daizo Jito

MAM-062

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20374 7590 09/08/2009  
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EXAMINER

MAPLES, JOHN S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/08/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,045	<b>Applicant(s)</b> JITO ET AL.	
	<b>Examiner</b> John S. Maples	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 23-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-22 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. Claims 23-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5, 8-10, 12-17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2003-007295 ('295-corresponds to JP-02/071512) in view of Ikeda et al.-EP 1231651 (Ikeda) and further in view of either Ebner et al.-US 4,853,304 (Ebner) or JP-07-249431. ('431) (New Rejection)

Reference is made to paragraphs 30 and 44-51 of '295 for a noncrystalline (amorphorous) silicon thin film with cobalt therein for use as an anode in a non-aqueous battery, which electrolyte includes the claimed vinylene carbonate and diethyl carbonate and the recited salts. It is noted that paragraphs 33-34 in '295 disclose roughening the current collector. The only claimed features not shown by '295 are the carbon dioxide in the electrolyte, the specific roughness of the current collector and the columns in the thin film. As set forth in the Abstract, column 2, lines 15-23 and column 4, lines 26-43 of Ebner and as set forth in the English language Abstract of '431, the amount claimed of carbon dioxide is added to a non-aqueous battery. It therefore would have been obvious to one of ordinary skill in this art at the time the invention was made to have the battery of '295 include the claimed amounts of carbon dioxide as taught by both Ebner or '431 because the same would improve the cycling efficiency of the non-aqueous battery. It is noted that Ikeda teaches in paragraph 12 roughening the current collector therein to a size of 0.1 microns. It would also have been obvious to make the roughness of the current collector in '295 of 0.1 microns as taught by Ikeda because the same would allow for better adhesion of the active material on the electrode. In addition, Ikeda discloses in the Abstract and in at least paragraphs 6-21, an amorphous silicon thin film in a lithium battery where the film is divided into columns by gaps that extend in the thickness direction of the film. To have included the columns in the thin film of Ikeda in the thin film of the anode in '295 would have been obvious to improve the output of the lithium battery.

Applicant's arguments have all been considered but are deemed moot in view of the above new grounds of rejection.

5. Claims 1-5, 8-10, 12-15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-01-029913 ('913) in view of Ikeda et al.-EP 1231651 (Ikeda) and further in view of either Ebner or '431. (New Rejection)

Reference is made to page 1, lines 1-32; page 4, lines 20-28; the last 3 lines of page 5 through page 6, line 8 and the last 7 lines on page 7 through line 9 on page 8 of '913 for a noncrystalline (amorphorous) silicon film that may include cobalt or iron therein for use as an anode in a non-aqueous battery, which electrolyte includes the claimed propylene carbonate or ethylene carbonate and dimethyl carbonate and the recited salts. It is noted that lines 5-6 on page 6 in '913 disclose roughening the current collector that includes the claimed 0.1 micron size. The only claimed feature not shown by '913 is the carbon dioxide in the electrolyte and for the thin film including columns. As set forth in the Abstract, column 2, lines 15-23 and column 4, lines 26-43 of Ebner and as set forth in the English language Abstract of '431 the claimed amount of carbon dioxide is added to a non-aqueous battery. It therefore would have been obvious to one of ordinary skill in this art at the time the invention was made to have the battery of '931 include the claimed amounts of carbon dioxide as taught by both Ebner or '431 because the same would improve the cycling efficiency of the non-aqueous battery. Ikeda discloses in the Abstract and in at least paragraphs 6-21, an amorphous silicon thin film in a lithium battery where the film is divided into columns by gaps that extend in the

Art Unit: 1795

thickness direction of the film. To have included the columns in the thin film of Ikeda in the thin film of the anode in '913 would have been obvious to improve the output of the lithium battery.

Again, applicant's arguments have all been considered but are deemed moot in view of the above new grounds of rejection.

6. Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over either '295 or '913, each taken in view of Ikeda and Eschbach et al.-US 5,681,357. ('357) (New Rejection)

The only claimed features not shown by both '295 and '913 is the copper alloy current collector. The '357 patent teaches in column 3, lines 8-24 a copper alloy current for a non-aqueous lithium secondary battery and to include the same in either '295 or '913 would have been obvious because the same provides excellent current conduction for the battery cell and is a straightforward substitution in this art.

7. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eber or '913, each taken in view of Ikeda and further in view of JP-2000-311706. ('706) (New Rejection)

The only claimed features not shown by Eber or '913 are the specific amounts of the various electrolyte solvents set forth in claims 18-21. The '706 reference teaches the claimed amount of the ethylene carbonate not exceeding 70% because this solvent

Art Unit: 1795

is part of a three part solvent not less than 30% in volume. The '706 also teaches the vinylene carbonate of not less than 0.5%. It would have been obvious to have the ethylene carbonate of an amount of 0.1-20% or an amount of 50-70% because the same would provide enhanced conductivity of the electrolyte. To include in either Eber or '913 the amounts of the solvents in '706 would have been obvious for the high conductivity of these solvents.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Maples/

John S. Maples  
Primary Examiner  
Art Unit 1795

JSM/9-7-2009